Mastertech M-VCI – NETGEAR® Router

Installation Guide

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Please note: The Mastertech VCI is referred to as "M-VCI" within this guide.

Getting Started

Installation Overview

These installation instructions are designed to guide you through the process of configuring your Mastertech VCI (M-VCI) to a wireless access point and an existing internet connection. There are three (3) possible types of connections we are addressing within this guide: existing router, DSL/cable modem, and no internet connection.

Note: If you are not using an internet connection, you will be setting up this router as a stand alone device to enhance the wireless communication between your PC and the M-VCI scan tool. Please follow the directions as they pertain to a Type III (non-internet) condition.

Although this guide is designed to be compatible with as many network layouts as possible, there is a small chance that the specific steps may not be compatible with your specific situation. In these cases, you should contact your network IT specialist for assistance.

Adding wireless capabilities to a wired network, or adding additional wireless access points to networks that already have wireless capabilities can be accomplished with little or no changes to your pre-existing network settings or configuration.

The advantage of using the M-VCI on a wireless network with internet is that the M-VCI will have better coverage compared to an ad-hoc wireless connection, and it allows simultaneous wireless connection to the tool and internet.

The first section of this guide will help determine if your existing network is compatible with the procedures suggested within this guide.

Please Note (applies to both internet and non-internet users): Shop Foreman Pro with M-VCI Manager must be installed on your PC prior to continuing with the NETGEAR Router installation.

Before Getting Started (applies to both internet and non-internet users): The router configuration files need to be downloaded from the Bosch diagnostics website and saved to your PC. Saving them in a New Folder within My Documents is recommended.

An install of one of these files is required during the configuration process of your router installation.

Follow these steps:

1. Please visit the software download section of **http://www.boschdiagnostics.com**
2. Select NETGEAR Router from the menu
3. Download the NETGER configuration files applicable to your router version
4. Save these files to your PC (Desktop or My Documents)

Later, during installation, you will be prompted to browse to these files and select the appropriate configuration file for your router.

Step A - Pre-qualifying your existing setup

The first and most important criteria is:

Is your network using Dynamic IP addressing, or Static IP addresses?

IP Address: An IP address is a device's electronic "street address" on a network. Every device on a network must have an IP address, this includes computers, routers, network printers, etc.

There are two methods by which every device on a network receives its IP address:

Dynamic IP addressing (DHCP) is the most common. A single device on the network (usually a router) assigns IP addresses to each new device that is detected on the network. This device is called a DHCP Server.

Static IP networks do not use a DHCP server, all IP addresses are manually assigned at each device by a network administrator. Because we can not predict the specific IP address range assigned, the configurations outlined in this guide require additional steps for networks using Static IP addressing.

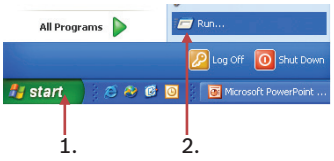
The M-VCI will still function on these networks, but the set up must be a manual process that is specific to your network configuration.

The first step in this process will determine if your network uses Static or Dynamic IP addressing. Refer to Appendix A for additional information.

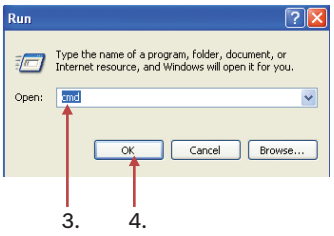
Step B – Identifying your IP Address Type

Start with a computer that is currently running on your existing network. To determine if your computer network is using Static or Dynamic IP's:

1. Click: The Windows Start Button
2. Click: Run



3. Enter: "cmd" into the Run window (without quotes)
4. Click: OK

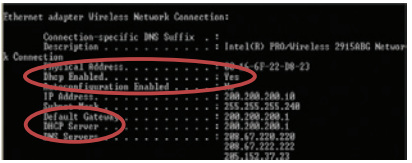


Important: Before proceeding with this step, be sure your PC is connected to your network or to your modem. If you are using a wireless or stand alone PC, connect the new NETGEAR Router to your PC LAN port with the provided Ethernet cable.

Step C – At the MS-DOS Prompt – Check DHCP

1. Type: "ipconfig /all" (without quotes) into the command window
2. Compare output to the examples below
3. Output must include the line "DHCP Enabled... Yes"
4. Also verify that "DHCP Server" is present

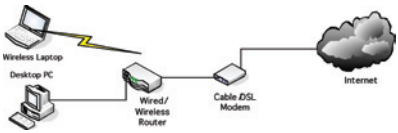
The actual numbers for the IP addresses are irrelevant



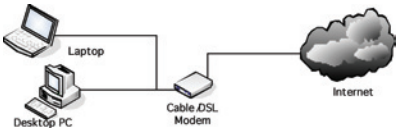
If your output matches the output above then you may continue this guide.

If DHCP Enabled = No, then additional steps must be taken to configure the M-VCI. (See Appendix A – Static Network Reference Guide)

Step D – Choosing your Setup type and Special Instructions



Type I (Current setup w/router. Existing router as DHCP server)



Type II (Current setup w/DSL or cable modem and no router. The ISP is the DHCP server)

Type III (No internet connection)

If your setup looks most like Type I - Follow Instructions & “Special Instructions for Type I”

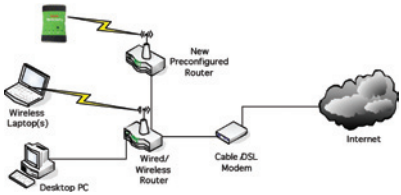
If your setup looks most like Type II - Follow Instructions & “Special Instructions for Type II”

If your setup looks most like Type III - Follow Instructions & “Special Instructions for Type III”

The M-VCI – NETGEAR Router install procedure is similar for all types. When a “Special Instruction” is called out, please follow the one pertaining to your setup type.

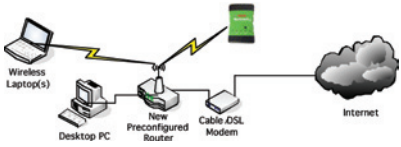
The Type III has no internet connection but uses the NETGEAR Router to enhance M-VCI to PC wireless communication.

Example – Final Setup Configuration for Type I

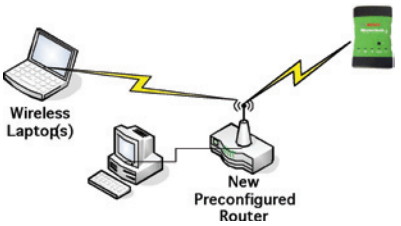


This shows the new NETGEAR pre-configured router installed into a network (Setup Type I) with a pre-existing wireless router. No network changes need to be made to existing routers or computers. Do not perform this final set up until directed to do so. You need to configure your new NETGEAR Router first.

Example – Final Setup Configurations for Types II & III



This shows the NETGEAR pre-configured router installed into a network (Setup Type II) without any pre-existing wireless router. No network changes are necessary for DSL/cable modem or wired computers.



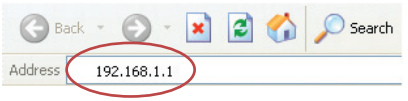
This shows the NETGEAR pre-configured router installed as a stand-alone device (Setup Type III) without internet.

Installation Steps

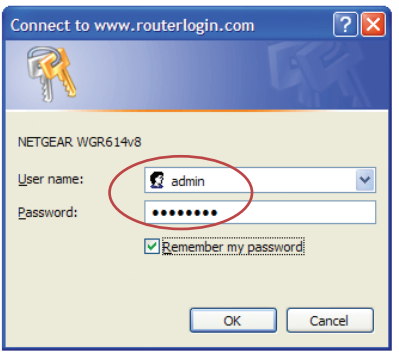
Step 1 - NETGEAR Router configuration (For: Types I, II & III) (Getting Started)

- Connect the NETGEAR router to AC power
- Disable the wireless card on your computer
- Disconnect all wired network connections
- Connect the router to the computer LAN port

- Reboot the computer (to renew the IP address)
- Open your web browser
- Enter http://192.168.1.1 into your browser address bar and press <Enter>



- Enter User Name and Password
  - User Name: **admin**
  - Password: **password**

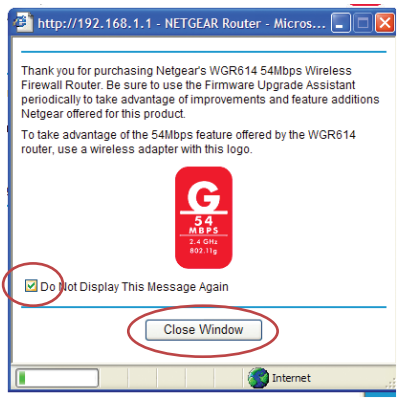


Note: The router does not need internet connection at this time.

Step 1 - NETGEAR Router Configuration (For: Types I, II & III) (Router Initialization)

The first time you log into the router it will display a greeting screen, and a prompt For “Smart Setup Wizard”

- Uncheck: Do Not Display This Message Again
- Click: Close Window



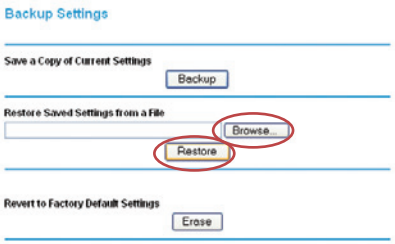
- Check: No to Setup Wizard
- Click: Next

Step 1 - NETGEAR Router Configuration (For: Types I, II & III) (Router Navigation)

- Click: Backup Settings

Step 1 - NETGEAR Router Configuration (For: Types I, II & III) (Restore Settings)

- Click: Browse



- Select the applicable configuration file that agrees with your NETGEAR router version. The router version is identified on the label on the underside of the router.
- Click: Restore
- Wait for the progress bar to indicate completion of the restoration.

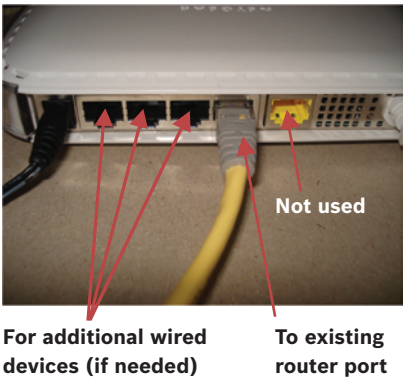
Updating Settings

▶ Done!

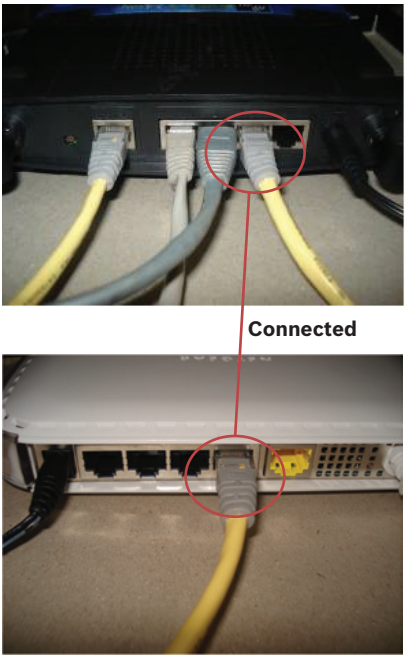
At this point, the router will reboot and you will lose communication, this is normal. Disconnect the computer from the NETGEAR Router at this time.

Step 2 - Connecting Your Wired Devices "Special Instruction for Type I"

- ▶ Using an Ethernet cable, connect one end into the LAN port on the NETGEAR Router.
- ▶ Connect the other end to one of the following:
  - A LAN port on your pre-existing router or,
  - An open network drop that is connected to your pre-existing network.
- ▶ Provide AC power to the NETGEAR Router



This shows a typical connection to an existing router.

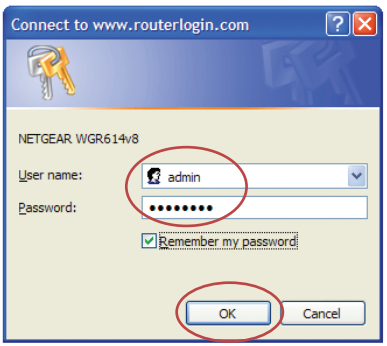


You are now finished with Step 2, proceed to Step 3.

Step 2 - Connecting Your Wired Devices “Special Instruction for Type II”

Important: Use the same PC that was originally connected to the modem for these steps.

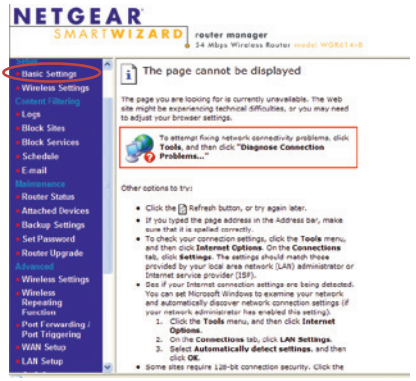
- Connect the computer to the LAN port of the NETGEAR Router
- Reboot the computer (to renew the NETGEAR Smart Wizard IP Address)
- Open your Web Browser
- Enter http://192.168.10.1 into your browser address bar and Press: <Enter>
- Enter User ID and Password
  - User ID: **admin**
  - Password: **Bosch_VCI_AP**
  - Click: OK



Caution! Do not connect the router to the cable/DSLmodem at this time.

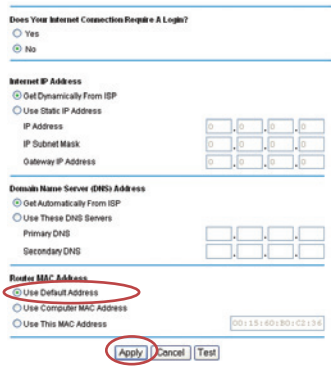
Step 2 - Connecting Your Wired Devices “Special Instruction for Type II” (Setting NETGEAR Router configuration)

- Click: Basic Settings



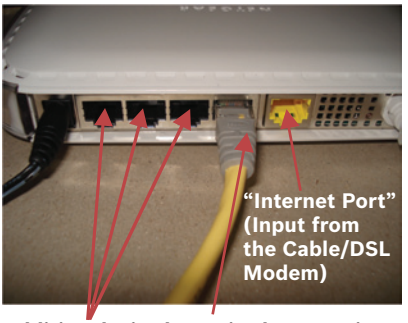
Step 2 - Connecting Your Wired Devices “Special Instruction for Type II” (Setting NETGEAR router MAC Address)

- Click: Use Computer MAC address
- Click: Apply
- Wait for the router to apply settings



Step 2 - Connecting Your Wired Devices "Special Instruction for Type II" (Setting NETGEAR Router Internet Port to the Cable/ DSL Modem)

Attaching the NETGEAR Router to the cable/DSL modem.

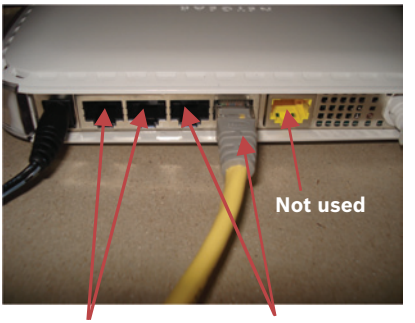


Additional wired devices **Wired connection to PC (If required)**

You are now finished with Step 2, proceed to Step 3.

Step 2 - Connecting Your Wired Devices "Special Instruction for Type III"

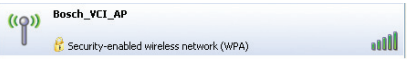
Connect wired computer(s) to the router (if needed).

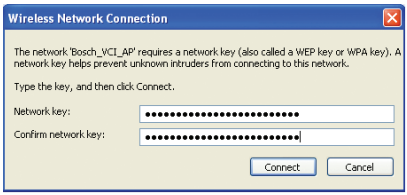


Additional wired devices **Wired output to PC(s)**

Step 3 - Connecting Wireless PC's (if required) "Special Instruction for Types I, II & III"

- Open the Wireless Network Manager for the PC that will be interfacing with the new NETGEAR Router.
- Search for wireless networks
  - SSID = Bosch_VCI_AP
- Configure Encryption
  - WPA Personal TKIP
  - Passphrase = Bosch_ VCI_800-321-4889

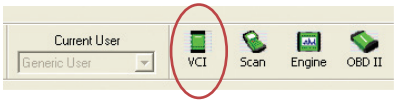




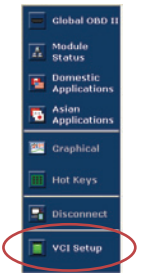
Note: This is a typical screen shot, however, your actual screen may be different depending on your brand of PC. Not all PC's require the confirmation of the network key. Refer to Appendix B for additional information. Refer to Appendix D when using multiple NETGEAR Routers.

Step 4 – Setting up your VCI (Applies to Types I, II & III) (Starting VCI Setup)

Note: Shop Foreman Pro w/VCI Manager must be installed on your PC prior to proceeding to the following steps.



- Connect M-VCI to the AC power
- Connect M-VCI to the computer via USB
- Open Shop Foreman Pro
- Click: M-VCI icon at the top of the screen
- Click: VCI Setup



Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Verify USB Connectivity)

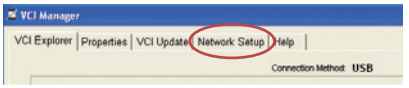
- Verify M-VCI shows up in M-VCI connection window
- Click: VCI Manager

- Click on the image of the M-VCI
- Click: Connect

Note: The S/N shown should agree with the S/N on the label of the M-VCI unit.

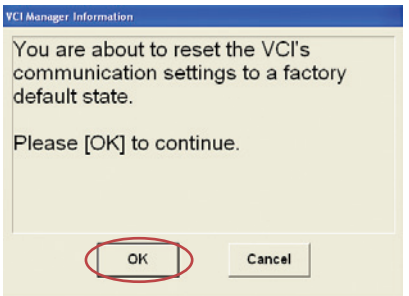
Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Clearing Existing Network Settings)

- Click: Network Setup Tab



- Click: Clear Network Settings

- Click: OK



- Wait for the “Configuration Complete” Message

Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Configuring Wired Ethernet Settings)

While in Network Setup:

- Click: Wired Ethernet Tab
- Click: Enable Wired Ethernet Interface

Note: If your network utilizes Static IP addresses, do not enable Wired Interface with Static IP.

Note: This will allow M-VCI to be connected to any network Ethernet port if there is limited or no wireless coverage.

Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Configuring Wireless Connection Settings)

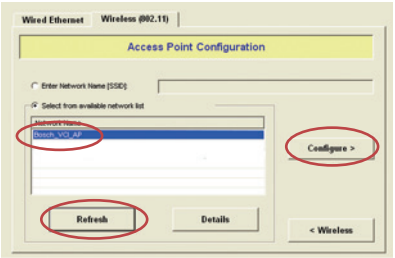
While in Network Setup:

- Click: Wireless (802.11) tab
- Click: Enable Wireless Interface
- Click: Access Point button

Note: If your network utilizes Static IP addresses, see Appendix A.

Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Setting the Wireless SSID)

- Click: Refresh
- Select: Available Network
  - **Bosch_VCI_AP** (include underscores)
- Click: Configure

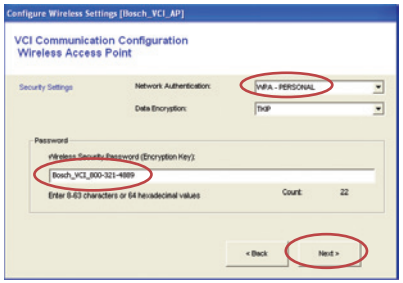


Option: You can manually enter SSID **Bosch_VCI_AP** into the text box.

Note: Refer to Appendix D when dealing with a network with multiple access points.

Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Setting the Wireless Encryption)

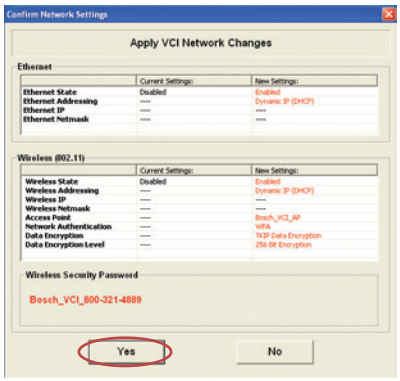
- Verify: Network Authentication
  - WPA – Personal
  - TKIP
- Enter: security password
  - **Bosch_VCI_800-321-4889** (include underscores)
- Click: Next



Note: Double check password: **Bosch_VCI_800-321-4889**

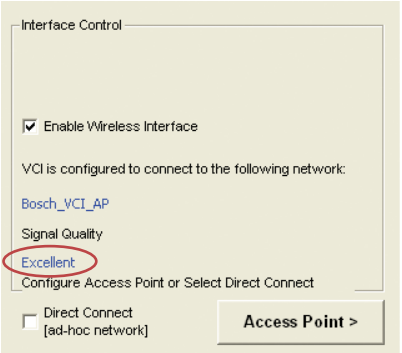
Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Verifying your Settings)

- Verify Your Settings
- Click: Yes, Select OK
- Wait for the "Configuration Complete" Message



Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Verifying your Wireless Strength)

Search for “Signal Quality” below.



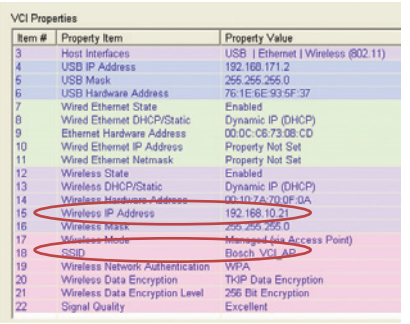
After configuration, confirm signal quality.

Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Confirming your IP Address)

Return to VCI Manager.

- Click: Properties Tab

- Confirm Wireless SSID
- Confirm Wireless IP
- If IP says “Not Set”, click Refresh
- Close the VCI Manager
  - Click the red “X” in the upper right corner

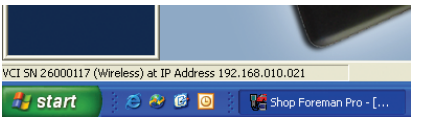


Step 4 – Setting up your M-VCI (Applies to Types I, II & III) (Final step before starting)

From “Mastertech VCI Setup”:

- Select: Wireless VCI

- Click: Apply
- Unplug the USB cable from the M-VCI
- Verify the IP address in the status bar



- Ready to Use

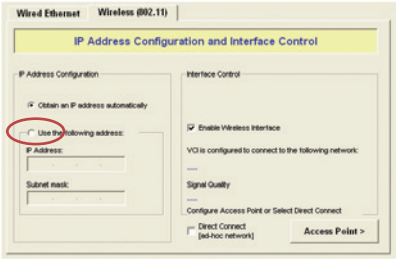
Appendix A

Static Network Reference Guide

If your shop network utilizes Static IP addresses:

- An unused IP address must be manually entered for the M-VCI
  - Subnet mask must match the network
- Utility such as Look@Lan may be used to “Map” the network, visit this site if needed:
  - www.lookatlan.com
  - Or, contact your network IT specialist for assistance
- Do not set Static IP address on both wired and wireless interfaces of the M-VCI

Select “Use the following address” to manually enter a valid IP address and subnet mask.



Appendix B

Wireless Troubleshooting Guide

Wireless performance can be affected by many factors:

- Physical obstructions to the signal (walls)
- Distance from the wireless access point
- Interference from external sources
  - Other radios or wireless networks
  - Microwave ovens
  - Wireless congestion (too many networks utilizing the same channel)

Ensure that the wireless router is in a centralized location.

Position the wireless router as high as possible in your shop to assure optimum signal radiation.

If you are experiencing connection issues:

- Verify the M-VCI functions correctly using a USB cable
- If you suspect the “WPS” button on the version 10 router was pressed then reinstall the Bosch configuration file into

the NETGEAR router applicable to your system configuration.

- Verify that you are using the most current release of Shop Foreman Pro and M-VCI software.
- Verify firewall and security settings on the computer
- Verify the Bosch Router Wireless Network is set to the
  - highest priority
  - “Automatically” connect
- Verify all other wireless networks are set to “Manually” connect and lower priority than the Bosch Router Wireless Network
- **Power-cycle the wireless router and M-VCI**
  - This will force the router to check for “open” channels
- Utilities such as NetStumbler can assist in checking wireless signal issues. NetStumbler can be found at: http://www.netstumbler.com/downloads/

Appendix C

Router Information

These are your NETGEAR Router settings when finished with installation:

Router IP address (after initial configuration)

- Type I
  - IP: 194.194.194.1
  - Subnet Mask: 255.255.255.252
- Type II & III
  - IP: 192.168.10.1
  - Subnet Mask: 255.255.255.0

Router login information (after initial configuration):

- User Name: **admin**
- Password: **Bosch_VCI_AP**

If necessary employ the following to reset the router to factory settings:

- With power applied to router, hold down the Reset button on the back of the unit for 30 seconds.

Appendix D

Using Multiple NETGEAR routers.

It is possible to use multiple NETGEAR routers together in a single installation. In most installations, a single NETGEAR router is sufficient for handling the communications between

a number of M-VCIs and PCs. However, there are situations, such as a large repair facility, where the use of multiple NETGEAR routers will improve wireless network performance.

One recommended configuration for deploying multiple NETGEAR routers is to configure a single NETGEAR router as Type III, and the remaining NETGEAR routers as Type I. Another recommended configuration is to configure all NETGEAR routers as Type I to be used with an existing wireless router. Each NETGEAR router is configured separately as described in the main body of this document. In either recommended configuration, the routers are connected together via LAN ports (using Ethernet cables). The routers may be “daisy-chained”, or connected “hub-and-spoke”. In this way, a single DHCP server is used for the entire wireless network.

Other configurations using multiple NETGEAR routers are possible, but these may require additional configuration of the individual NETGEAR routers. Please consult Appendix C and the NETGEAR router documentation.

Most PC wireless interface software supports the configuration of multiple access points. The PC can be moved from access point to access point by selecting the appropriate access point prior to connection to the M-VCI. Please consult the wireless software documentation that comes with your PC.

When all of the NETGEAR access points in the wireless network have the same SSID, the M-VCI will typically communicate with the first NETGEAR access point it encounters. Thus, the M-VCI can be moved around in the repair facility, but there is no guarantee that it will always communicate with the same access point. This may result in some access points handling more wireless traffic than others. To force a particular M-VCI to always communicate with a particular access point, the SSID for the access point must be altered. This is done through the NETGEAR router configuration utility (see Appendix C and NETGEAR documentation). After altering the SSID of an access point, you must change the wireless SSID in the M-VCI to match the access point (see Step 4 – Setting the Wireless SSID), and in any PC using the access point.

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